Project Report
Alaska Public Broadcasting, Inc.
Project Number 0117-DC-2004-15
January 1, 2009 – March 31, 2009

Alaska Rural Communications Service & Satellite Interconnection Revitalization

Project Summary: the ARCS revitalization project continues to make measurable progress. The project objective is the restoration of television broadcast programming to bush and rural communities by either repairing or replacing non operational equipment. This includes transmitters, antennas, satellite dishes, receiver/decoders, or towers.

Restoration of service: reliable ARCS service has been restored to more than 100 bush and rural communities where it had been completely off or seriously degraded.

Acquisition and refurbishment of equipment: refurbishing original transmitters saves approximately $5000 per unit compared to purchase of new systems. We continue to cycle rebuilt units to the villages and bring the failed units back from those communities and send them off to the factory for rebuilding. We have rights to use some new receivers to decrease our response time when existing units fail in the villages.

Provision of timely customer support: with a system that includes more than 200 sites, technical staff is kept busy each day with myriad general service and trouble calls involving unique factors and circumstances to analyze and address. The range of work can run from a simple reset to a complex set of problems which have resulted in the complete failure of a village's local service.

Establishment of community partnerships: the majority of the service restoration work is attained through partnership, technical staff working with dedicated community volunteers. Some sites and projects require staff travel in order to deal with the extraordinary circumstances.

Phases two and three are complete: modern technology based systems have been designed and implemented allowing for consolidation of a delivery system and central point of control for multiple content streams. A new method of controlling the ARCS program schedule is fully operational, allowing for remote operation. Equipment purchase and installation of the new State of Alaska satellite uplink system became operational on January 25, 2007.

The overall project is on schedule and within budget. We have not encountered any serious unanticipated problems or set backs requiring significant changes to the work scope. Restoration or upgrading of service presents a different challenge in each community. In partnership with our community liaisons, we continue to identify and solve these problems.

Activity detail: January 1, 2009 – March 31, 2009

- ARCS Technical Support handled 145 calls for assistance from 35 different bush and rural communities serviced by ARCS. As email becomes more readily available in the villages, we are seeing around two dozen email contacts per month that, in the past, would have been phone calls.
- The tiny northern Alaska community of Birch Creek has been struggling to restore their ARCS service for a year. With the equipment we sent, our telephonic guidance and a well coordinated effort by local volunteers, they were able to get all the gear installed,

properly aligned and even adjusted the azimuth and elevation on the large Cband satellite dish. Finally, at the end of March, ARCS television was restored to one of our most isolated villages.

- In Circle the ARCS system is housed by the local privately owned electric company. Their new owner contacted us about helping restore ARCS service. With some coordination from our office which included rewiring and properly aligning levels, we put them back on the air.
- When the Haines ARCS service disappeared, the first suspected cause was ice and snow in the dish. However, when that was removed and service did not reappear, we started looking elsewhere. Eventually local helpers found that a large piece of ice had fallen off the building, shearing the satellite receive cable. Repairs were made; service restored.
- Sometimes all it takes to get ARCS back on the air is one more phone call. That may sound simple, but coordinating people's time and availability is sometimes the most difficult task, even when replacement equipment has arrived at the remote site and is ready to turn up. Kaltag is a good example of local office workers who know almost nothing about broadcast equipment, yet are willing to perform installation and alignment as long as they have guidance on the phone talking them through the process one step at a time. In mid March their modulator failed, and rather than send the whole transmitter cabinet back to APBI, they agreed to remove the old mod and install, wire up, and align the replacement at their site. On the other hand, at Pilot Station there is no phone available that can reach the ARCS equipment, so when their satellite receiver failed, and a replacement was sent, it was up to the local volunteer to make the swap and bring the site back up. In both cases, these isolated villages were reconnected to the outside world through ARCS Television.
- We replaced a satellite receiver in Unalakleet when it failed following a village power outage. Inconsistent power is one of the most common causes of damage to our broadcast equipment. In Saint Paul, however, it was a wind storm that ripped part of the roof off the city building, allowing rain water to get into the satellite receiver. Luckily the rest of the transmission gear was shielded from the rain pouring into the room, so another exchange of a failed unit with a rebuilt one helped get their ARCS system back on the air.
- By the end of March I was grateful to see several refurbished transmitters, a dozen modulators and eight satellite receivers all returning to our office from repair depots, providing our office with the equipment resources we will need as spring arrives in rural Alaska and more communities engage our services.
- We continue to field calls asking about the impending digital television conversion. ARCS is a system of low power transmitters and is exempt from the upcoming deadline to shut off analog television transmitters. While we continue to plan for the digital future of television in rural Alaska, we have been assuring our viewers in a number of ways that their televisions will continue to work even after the deadline.

Alaska Public Broadcasting Digital Distribution Network

Project Summary: project objective is interconnection of public broadcasting system facilities by means of the internet or constructed intranet. Upon completion of the network, delivery of content - programming, data and voice - and access to advanced networking options will be available to the system, enhancing service to local, regional and statewide audiences. The project is based on a network design developed under a previous federal grant from the US Department of Commerce. The project began in March 2004 and milestones include:

Review of network design and work scope: a thorough review of the original design and work scope was completed to determine if the selected equipment was still the best choice.

University of Alaska partnership agreement: entered into a multi year agreement with the UA statewide office of information technology for provision of connectivity between the hubs via the UA data backbone; and operational oversight of the network on a twenty-four hour basis. This oversight provides rapid reporting of problems so system maintenance and repair can be provided with minimal down time for network users.

Equipment bids, purchase and deployment: the core equipment for the hub and control locations was installed in August, 2005. Since then, data network equipment for 26 stations has been installed. Competitive bidding has yielded average discount of 31% saving $465,000.

The overall project is on schedule and within budget. There continues to be local technical issues to resolve but we have made good progress and we have not encountered any serious unanticipated problems or set backs requiring significant changes to the work scope.

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All sites have been installed and project efforts remain focused on operations and maintenance. Coordinating and integrating the various sites on the network is ongoing with additional code updates focused on new software for routing and switching systems. Current activity is occasional technical assistance being provided to personnel at various sites.